Amendment under 37 C.F.R. §1.116 Amendment Filed: November 21, 2006

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

- 1. (Currently Amended) A semiconductor substrate comprising:
- a front face and a rear face that are both mirror-polished,

wherein said semiconductor substrate

meets an SFQR value \leq 70 (nm) as a flatness of the front face, and contains boron at a concentration higher than or equal to 5×10^{16} (atoms/cm³) and lower than or equal to 2×10^{17} (atoms/cm³);

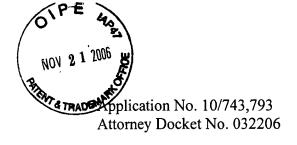
wherein a crystal layer is provided on the front face; and

wherein a minimum value of the concentration of boron [B] (atoms/cm³) is defined for a required thickness t (µm) of the crystal layer within said range of said concentration of boron, based on a relational equation

[B]
$$\geq$$
 (2.2 ± 0.2) × 10¹⁶ exp (0.21t).

- 2-3. (Canceled)
- 4. (Previously Presented) The semiconductor substrate according to claim 1, wherein a maximum value of a thickness t (μm) of the crystal layer is defined for a required concentration of boron [B] (atoms/cm³), based on a relational equation

$$[B] \ge (2.2 \pm 0.2) \times 10^{16} \exp(0.21t).$$



Amendment under 37 C.F.R. §1.116 Amendment Filed: November 21, 2006

- 5. (Previously Presented) The semiconductor substrate according to claim 1, wherein the crystal layer is a silicon crystal layer formed by epitaxial growth.
- 6. (Previously Presented) The semiconductor substrate according to claim 1, wherein the crystal layer is a silicon-germanium alloy crystal layer.
- 7. (Previously Presented) The semiconductor substrate according to claim 1, wherein the crystal layer is a layer in a layered structure of a silicon-germanium alloy crystal layer and a silicon crystal layer.
- 8. (Original) The semiconductor substrate according to claim 7, wherein the silicon crystal layer is formed in an SOI structure in which the silicon crystal layer is separated by a silicon oxide layer.
 - 9. (Previously Presented) The semiconductor substrate according to claim 1, wherein said semiconductor substrate is an SOI substrate; and wherein the crystal layer is an upper silicon crystal layer separated by a silicon oxide layer.
- 10. (Original) The semiconductor substrate according to claim 9, wherein the SOI substrate is formed by a SIMOX method.

- 11. (Original) The semiconductor substrate according to claim 9, wherein the SOI substrate is formed by a bonding method.
- 12. (Original) The semiconductor substrate according to claim 1, wherein the rear face is in an exposed state, or a natural oxide film having a thickness of 1 (nm) or less is formed on the rear face.
- 13. (Original) The semiconductor substrate according to claim 1, wherein carbon is contained at a concentration of 1×10^{15} (atoms/cm³) or higher.
 - 14. (Currently Amended) A semiconductor device, comprising:

a semiconductor substrate having a front face and a rear face that are both mirror-polished, said semiconductor substrate meeting an SFQR value ≤ 70 (nm) as a flatness of the front face, and containing boron at a concentration higher than or equal to 5×10^{16} (atoms/cm³) lower than or equal to 2×10^{17} (atoms/cm³), wherein a crystal layer is provided on the front face; and wherein a minimum value of the concentration of boron [B] (atoms/cm³) is defined for a required thickness t (μ m) of the crystal layer within said range of said concentration of boron, based on a relational equation

$$[B] \ge (2.2 \pm 0.2) \times 10^{16} \text{ exp } (0.21t); \text{ and}$$

a semiconductor element formed on the front face of said semiconductor substrate.

Amendment under 37 C.F.R. §1.116 Amendment Filed: November 21, 2006

15. (Withdrawn) A manufacturing method of a semiconductor substrate, comprising the steps of:

forming a silicon wafer by doping with boron at a concentration higher than or equal to 5×10^{16} (atoms/cm³) lower than or equal to 2×10^{17} (atoms/cm³);

mirror-polishing a rear face of a front face of the silicon wafer, the front face being a face on which a crystal layer is to be formed;

mirror-polishing the front face of the silicon wafer to achieve an SFQR value of the silicon wafer \leq 70 (nm); and

forming a crystal layer on the front face of the silicon wafer.

16-18. (Canceled)